

SOME ANOMALOUS PLANTS OF TIARELLA AND
MITELLA.

M. L. FERNALD.

THE occurrence, at least in the wild state, of inter-generic hybrids is so unusual that the following instances of what seem with little question to be hybrids between *Tiarella cordifolia* and species of *Mitella* are worthy special record and closer observation in the field.

My attention was recently called to the existence of these plants by the receipt from Mr. J. M. Macoun of a sheet of specimens collected by his father, Professor John Macoun, on rocks in a ravine near Eel River, New Brunswick, on August 29, 1899. The plant which suggested to Professor Macoun the long-lost, and never rediscovered, *Mitella prostrata* described by Michaux from Lake Champlain, is in aspect like a freely stoloniferous plant of *M. nuda*, in the rounded lobes of the leaves and the very slender stolons inseparable from that plant. Its inflorescences, borne irregularly at the tips of the leafy flagelliform stolons are quite unlike those of *M. nuda*, but in their short oblong outline suggest the racemes of *Tiarella cordifolia*. The flowers, too, are structurally similar to those of *Tiarella*: the petaloid calyx free from the subulate capsules which vary from 1 to 3 and are apparently quite empty and inclined to shrivel without enlarging; the petals when present linear-spatulate and entire or ciliate-margined, rarely exceeding the sepals; the stamens as in *Tiarella*, and varying from 5 to 10. The stolons bear numerous reddish deeply lacerate stipules which sometimes subtend normal leaves, and again bear in their axils minute subulate bodies resembling the pistils of the racemose flowers; and in the racemes many of the flowers are subtended by the conspicuous ciliate-fimbriate bracts which are much larger and more freely cleft than the bracts in normal *Tiarella*.

From the above description it will be seen that the Eel River plant is aberrant in many regards. With the habit of *Mitella nuda*, it has flowers which structurally suggest *Tiarella cordifolia*, though the petals are sometimes ciliate, a character which suggests the fimbriate petals of *Mitella*. The sterility of the plant, and its eccentric habit of flowering from the tips of the stolons at the end of August, instead of in early summer when both *Mitella nuda* and *Tiarella cordifolia* are normally

in anthesis,¹ indicates, in connection with its other characters, that the anomalous plant from Eel River is a probable hybrid between those two species, both of which abound in the St. John Valley.

Another plant which seems to be a hybrid of *Tiarella cordifolia* and a species of *Mitella* was noted by Dr. Gray² in 1886, although that fact seems to have been overlooked in two recent extended publications on the North American *Saxifragaceae*,³ where another probable hybrid, between *Mitella diphylla* and *M. nuda*, is recognized by both authors, by Dr. Rydberg as *M. intermedia* Bruhin; by Dr. Rosendahl as *M. diphylla*, forma *intermedia*, with the suggestion as already made by Mr. Bruhin in a letter to Dr. Gray that the plant is a hybrid. The plant referred to by Dr. Gray in the Bulletin of the Torrey Botanical Club has the aspect of a small-flowered *Tiarella* with unusually rounded leaves, and the small petals are more or less lacerated. This plant which was thought by Dr. Gray to be a possible hybrid of *Tiarella cordifolia* and *Mitella diphylla* is represented by two sheets in the Gray Herbarium, one from Williamstown, Massachusetts (coll. *Sanborn Tenney*), the other from Wilton, New Hampshire (coll. *M. A. C. Livermore*).

Since the parents of these supposed hybrids are all common in many portions of New England and eastern Canada it is hoped that the above notes will stimulate those who have opportunity to watch them in the field to observe whether this tendency to inter-generic hybrids is more common than we suppose, and, more important still, whether these plants, as seems to be the case, are always sterile.

Another plant which should be sought by northeastern botanists is *Mitella prostrata* Michx. discovered by Michaux more than a century ago near Lake Champlain, but so far as we know not since detected. This was originally described as

M. "PROSTRATA. *M.* radice repente; caulibus prostratis, alterne foliosis: foliis rotundato-cordatis, subacutis, obtuse sublobatis.

Hab. ad fines meridionales Canadae."⁴

This plant was taken by Torrey and Gray to be a peculiar extreme

¹ *Tiarella cordifolia* flowers regularly in late spring and early summer, and rarely if ever produces autumnal flowers. *Mitella nuda*, on the other hand, is inclined to produce flowers somewhat erratically throughout the summer and autumn, though its season of profuse blooming is in late spring and early summer.

² A. Gray, Bull. Torr. Bot. Cl. xiii, 85 (as insert), 100 (1886).

³ Rydberg, N. A. Fl. xxii. pt. 2, (1905); Rosendahl in Engler, Bot. Jahrb. xxxvii. Beibl. 83 (1905).

⁴ Michx. Fl. i. 270 (1803).

of *M. nuda*: “ β . creeping shoots assurgent at the extremity, bearing a terminal raceme”;¹ and subsequent authors have very generally considered the plant a phase of *M. nuda*, while both Doctors Rydberg and Rosendahl in their monographs reduce it to unquestioned synonymy as identical with that well-known northern species.

Michaux's specimen at the Muséum d' Histoire Naturelle in Paris, however, shows that, while the plant is an undoubted *Mitella*, it is far from identical with *M. nuda*. The sheet, bearing besides analytical notes the inscription in Michaux's hand “*Mitella prostrata*. Lac Champlain,” shows a plant as coarse as *M. diphylla*, with a thickish subterranean creeping rhizome, but no slender stolons as in *M. nuda*; the leaves strongly angulate-lobed as in *M. diphylla*; and the ascending flowering-stem 3.6 dm. high (taller than most *M. diphylla*) and bearing 4 very remote alternate leaves, the two lower strongly angled and long-petioled, the two upper scarcely angled and sessile. The raceme is very long-peduncled (6 cm. long), though a remote solitary flower is borne from the axil of the uppermost leaf. In general the inflorescence suggests that of *M. diphylla*, but the pedicels, 3–6 mm. long, are much longer than in that species, in which they are normally from 1.5 to 2.5 mm. long. In these rather long pedicels alone does the Michaux specimen of *M. prostrata* approach the more slender round-leaved scapose *M. nuda* to which it has too long been referred; but in the long pedicels as well as in its remote alternate leaves it strongly suggests Nuttall's *M. caulescens* of the Northwest. That clearly-marked species, however, has the pedicels strongly divergent while those of *M. prostrata* are as strongly ascending.

This detailed account of Michaux's original specimen of *Mitella prostrata* is here included not because, as in the case of the first two plants discussed in these notes, it is an apparent hybrid, but because it is evidently a lost species. Whether it is a plant genetically distinct from both the well-known eastern species it is now impossible to say; but the definition of the type-region, “ad fines meridionales Canadae,” supplemented by Michaux's manuscript record “Lac Champlain,” is sufficiently clear; and the Champlain Valley is being explored by botanists too keen and discriminating to overlook *Mitella prostrata* if, as in Michaux's day, it still grows near the border of Vermont.

GRAY HERBARIUM.

¹ T. & G., Fl. i. 586 (1840).